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AUTHOR	Kenney, Brigitte L.
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ABSTRACT

Rather than presenting a historical review or an inventory of existing services, both of which are the subject of other papers, interlibrary loan is discussed as part of overall library objectives, and in the context of the provisions of the Interlibrary Loan Code. By discussing two examples of networks in some depth, an attempt is made to arrive at some conclusions in regard to problems and successes, in terms of people, systems design, legislation, technology, and funding. A final section presents possible directions for the future and needed research. (Other papers from this conference are available as LI 003360 - 003369 and LI 003371 through LI 003390) (Author/NH)

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NETWORK SERVICES FOR INTERLIBRARY LOAN

Brigitte L. Kenney

Graduate School of Library Science, Drexel University[1]
Philadelphia, Pa.

> "Any breakthrough...is likely to come from outside the system. 'Experts' are the most thoroughly familiar with the developed knowledge inside the prescribed boundaries of a given science. Any new knowledge must usually come from the outside - not by 'expert', but by what someone has defined as an 'inpert'."
>
> Maltz, Maxwell
> Psycho-Cybernetics, p.viii

Introduction:

Interlibrary loan is one of the oldest forms of interlibrary cooperation. Informal networks for borrowing and lending books and other materials existed long before the word "network" crept into the librarian's language. The sharing of library resources probably began when books were first unchained from their desks and began to circulate. Very early, librarians realized that no single library could ever contain all that was wanted or needed; too, underfinanced as libraries have always been, they could not attempt to collect all the world's recorded knowledge without spreading themselves too thin. Thus they borrowed from one another those works which were needed by their patrons and which they did not own.

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[1]as of September 1970; formerly Department of Psychiatry, University of Mississippi Medical Center, Jackson, Miss.

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For many years borrowing and lending was governed by noblesse oblige - a gracious, voluntary sharing of one's wealth with one's poorer (library) cousin. It was often a one-way street, and sometimes, when abused, detrimental to the richer library's services. Each library could and did set its own rules, and it was difficult if not impossible for librarians to know who would lend what, under what conditions, and at what cost.

Thus we find that there is much precedent, at least in the area of interlibrary loans, for networking of a kind. Before discussing details, it is necessary to set down some definitions. In order to talk about network services for interlibrary loan we need to clarify some words and concepts which appear frequently in the literature.

"Cooperation" is perhaps the most frequently used term to cover a multitude of ways in which librarians are working together. In the context in which it is used here it means any venture in which two or more discrete library units work together in some common venture. This may range from the sharing of a bookmobile to school and public librarians discussing teacher's assignments. No formal relationship is implied.

"Library systems" may be thought of as two or more discrete library units tied together by a formal agreement

of some sort, which sets forth in which areas these units will work together and by what means administration of the common venture is accomplished, methods of remuneration if any, and often, if not always, legal restrictions or regulations governing the enterprise. Examples range from centralized processing centers to groups of libraries joining together for total library service to their combined publics.

"Network" may be thought of as either a formal or an informal linkage of discrete library units and other information-dispensing agencies for the purpose of exchanging or transferring recorded information. "Exchanging and transferring" is emphasized, implying two-way communication and some sort of switching mechanism.

Thus we have three levels of interlibrary relationships, which are, however, not mutually exclusive. An informal cooperative venture might very well include two-way communication and switching, while a library system might function as a network, but then again, it may be one-directional in its operation.

"Interlibrary loan" probably need not be defined; however, for the sake of clarity, let it be stated that it is that action which allows transfer of any recorded medium from an agency possessing it to another needing it. Note that we did not say "library" in this statement, because the agency may be a commercial

information producer, a data analysis center, or another kind of organization providing information in recorded form.

"Transfer of the recorded medium" may be by various means, ranging from messenger and mail service to linked computers. The "recorded medium" may be a book or a PCMI card, a reel of magnetic computer tape or a reel of videotape.

Looking at the interlibrary loan function in its broadest terms, we thus delimit the paper clearly. Excluded are reference and bibliographic transfers not involving full text or facsimiles. We will here concentrate only on document delivery, or to use the broader definition, transfer of recorded media, excluding surrogates.

Methodology:

Rather than presenting a historical review or an inventory of existing services, both of which are the subject of other papers, we will discuss interlibrary loan as part of overall library objectives, and in the context of the provisions of the Interlibrary Loan Code. By discussing two examples of networks in some depth, we will attempt to arrive at some conclusions in regard to problems and successes, in terms of people, systems design, legislation, technology, and funding. A final section will present possible directions for the future and needed research.

The Interlibrary Loan Code: (15)

We have noted that borrowing and lending of materials among librarians is a time-honored tradition. As collections increased and as library patrons needed more specialized materials for research and other purposes, so did the volume of interlibrary loans increase. It became apparent that there was a necessity for some governing principles and more formal procedures to provide access to the nation's library collections. Thus, in 1940, the first ALA Interlibrary Loan Code was produced and subsequently revised in 1952. It provided librarians with several principles, the strongest of which was that:

> "...interlibrary loan service is a courtesy and a privilege, not a right, and is dependent upon the cooperation of many libraries."[1]

Another states that:

> "...Interlibrary loan service supplements a library's resources by making available, through direct loans for a short period of time, materials located in other libraries and not owned by the borrowing library."[2]

And a third:

> "The purpose of interlibrary loans is to make available for research and for serious study library materials not in a given library, with due provisions made by the lending library for the rights of its primary clientele."[3]

It goes on to spell out in more detail duties and responsibilities of the borrowing library for the safety

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1-3(15),p.1.

of the material, accurate verification, screening of would-be users of the service. Photocopying of certain materials is permitted only if permission is first asked of the lending library. Certain classes of materials are excluded from the list of requestable items: current fiction, current issues of periodicals, inexpensive items currently purchasable, books for class use, any large groups of materials necessary for a thesis being written, and current books for which there is an anticipated demand. Also excluded are extremely rare books, music to be used in public performance, works difficult and expensive to pack, e.g. newspapers. Whether any item is loaned is entirely up to the discretion of the lending library.

Payment of transportation both ways is the responsibility of the borrowing library, as are any service charges assessed. Further, borrowing libraries are cautioned not to concentrate their requests on any one library to avoid overload. A designation of name and status of applicant are considered desirable but not mandatory. Provision is made for photographic reproduction, but with the caveat that if an entire work or issue of a periodical is requested, the ILL request must be accompanied by a written statement from the patron desiring the item that he will comply with copyright provisions.

Wrapping instructions are very specific, requiring

corrugated cardboard, plus heavy wrapping paper. Use of the standard ALA ILL form is strongly recommended but not required.

In 1968 the Code was revised again because of increasing use of photocopies in lieu of original materials (34). It also reflected some tightening of borrowing privileges; academic libraries were permitted to borrow only such items as were needed for research and thesis work for faculty, staff and graduate students. For the first time, we find a reference to the possibility of absorbing mailing and other small costs rather than keeping an account of postage refunds and photocopies. Photocopying is now permitted for all materials except when specifically forbidden by the lending library. Transmittal of requests can be made either on the standard ALA form or a similar form transmitted by teletype.

Verification requirements are as stringent as ever, and patron name and status are now required on each form. A manual was to accompany the Code; it could not be ascertained if such a manual was ever published.

In 1969, a further revision presents a Model Interlibrary Loan Code for Regional, State, Local or Other Special Groups of Libraries (28). It is a much more formal document, providing for signature by all participants for the first time. It "is intended to promote

more liberalized interlibrary loan policy among the libraries adopting it. It is based on the premise that lending among libraries for use of an individual...is in the public interest;"[1] and borrowing is no longer restricted to research only.

More emphasis is given to the borrowing library's responsibility to acquire all materials that might be expected to be owned by it; it should not rely on ILL for "ordinary needs." Types of material to be loaned are spelled out carefully; virtually everything is included. Each participating library <u>is required</u> to prepare a statement containing its own interlibrary loan policy; this is the first time this requirement is clearly stated. Financing is given more attention; again with the suggestion that negligible costs be absorbed or that clear-cut financial reimbursement arrangements be made. The concept of a "resource library" is introduced in this revision for the first time; these must be "designated" and channels for screening and transmittal of requests clearly spelled out. When telephone requests are accepted, the requirement to follow up with a written request may be waived by the lending library, another first in this document. Verification requirements are as stringent as before, but "special agreements" made within the group may waive part or all of these.

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[1](28), p. 514.

In the preface, the statement is made that "matters not spelled out in the model code (for example, screening and routing procedures, charges for photocopying, special contractual agreements, designated resource libraries) should be explicitly stated."[1]

We see here a definite trend; although the basic philosophy governing interlibrary loans has not changed, the Code has been made more explicit in many areas and has become more responsive to the changes wrought by photocopying, teletype, systems of libraries banding together and particularly to the needs of all types of users. We will discuss the advantages as well as the shortcoming of the ALA Code later in the paper when we look at the present status and possible future developments in this field.

Objective of Interlibrary Loan:

As traditionally conceived and as defined above, interlibrary loan meant the transfer of any recorded medium from one library to another. Its purpose was to make the scholarly record more readily available to all who needed access to it. By transferring materials from one location to another, the library enters into a communications process. It communicates with whatever location is thought to have the desired material. It

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[1](28), p. 513.

is true that a library patron requiring material not owned by his library can travel to another location to obtain it, but this is an expensive and time-consuming activity, particularly when the desired items are widely scattered in various locations throughout the country. By means of interlibrary loan some items, if not all that he needs, can be brought to him wherever he is, not always quickly, but most certainly less expensively than if he had to travel. The implications of this cost-savings will be discussed later, and the question raised if the user should, in fact, bear part of the cost of interlibrary loans.

Although librarians have traditionally said: "If we don't have it, we will get it for you", this has often been a somewhat misleading statement, which should probably have been qualified with: "if it is a book or journal", "if we can find it somewhere", "if it does not take an inordinate amount of staff time to locate it." Certain kinds of printed information have never been part of interlibrary loan activities; for example, pre-prints of forthcoming articles. If the user simply wishes to know what is currently available and important in the field of high-energy physics, interlibrary loan cannot help.

Thus we find that the objective of interlibrary loan is noble indeed: To provide the user with access to the world's recorded knowledge. However, as we shall see, this objective has not been achieved as yet to any notable degree.

Interlibrary Loan Process:

The ALA Interlibrary Loan Code governs the more general procedures of the process. However, it is useful to look at it in a slightly different way in the context of fitting into a network. As we noted above, the library enters into a communications process when placing a request. In a previous paper we outlined a generalized communications model and showed how traditional interlibrary loan procedures as well as direct access by the user to a data base fit into such a model (20). We found that librarians assume a great deal of responsibility when entering into this process; the user merely states his need, and the library takes over all necessary steps until the material is delivered to the user. In contrast, when the user accesses a data base directly, he assumes all responsibility for success or failure to obtain the wanted material, and only occasionally does an intermediate act as an advisor or problem solver. The implications of this are quite far-reaching when considering the future of media delivery via networks. Are librarians going to continue carrying the heavy burden alone, or will we transfer part or all of it to the user, acting mainly as a switching mechanism? Is it feasible to conceive of a system in which librarians will merely monitor and screen, rather than carry out all the present steps? When we speak of access to the scholarly record, do we necessarily mean through libraries?

Or are we willing to do whatever is necessary to provide access quickly and efficiently to the user, wherever he may be, by whatever means necessary?

A quick look at some existing facts and procedures will aid in understanding the problem. As mentioned briefly before, one means of speed-up has been the teletypewriter. Interlibrary loan requests are transmitted quickly and accurately, with the advantage of having a written record both at the sending and receiving end. An alternative means, the telephone, does not provide the library with a written record and is therefore not a preferred means of request transmission unless an emergency situation prevails.

When teletype machines were used in a group of medical libraries for the first time, a manual was developed for use by all participants, which required 24 hour turn-around, or answer service, as one condition of participation (2). Thus the time from request to receipt of material was drastically cut. We speculated in a previous paper that this 24 hour rule could have been instituted without the machine, but that the banding together in a group and the subsequent formulation of rules now made a firm agreement possible which had not been thought of when ILL was on a purely voluntary basis (3). First class mail delivery was another agreement reached by participants and again speeded up

delivery considerably. Thus we see that whenever a group of librarians can agree on a formalized procedure, improvement in service is almost always reached. Violators are simply "dropped from the list"; a very simple way to insure that rules are adhered to.

Why this need for speed-up? What is the picture now and what has it been, regarding volume handled by libraries? We find some interesting figures in the literature. Keenan found in 1962 that in ten years the volume of interlibrary lending among medical libraries had increased dramatically, and that the National Library of Medicine, having changed its policies from direct loan to physicians to lending only through libraries, had been called upon far too much by those libraries (18). New York, Ohio, Pennsylvania, Illinois and several other library-rich states were its heaviest users, and the journals most frequently requested were those which should have been owned even by small and medium-sized medical libraries. Inconsistencies in ILL policies among the various libraries was blamed for the abuse of NLM; it was far easier to borrow there than to learn all the various rules and regulations prevailing in other libraries.

Pings found a 70% increase of interlibrary loans in five years, or a total of 500,000, costing $3 Million.(37). We stated in a previous paper that

"without knowing where to turn for needed materials,

> what classes of materials can be loaned, copied, have to be paid for, or are free, it is difficult for the borrowing library to provide speedy service, even with maximum effort. It is often very expensive, in terms of manpower, to obtain a needed item if many avenues have to be tried before the desired document is located and delivered."[1]

Agreement is general among medical librarians that a good medical library ought to be able to provide 90% of all requests from its own collection. This standard is rarely if ever achieved, as we will see somewhat later, not even by some of the largest medical libraries in the country.

Almost all studies suggest that the lack of proper bibliographic tools, that is, lists of items with location indicated, slows down the ILL process considerably. All call for improvement in this area, and many efforts are underway to provide some solutions to this knotty problem. Union catalogs, union lists, and more recently, machine-stored location information, have increased considerably over the last few years and have aided in the search and verification process. They have, on the other hand, increased volume simply by being available. We found in a recent survey that Indiana special librarians would no longer turn to one of their large state universities for interlibrary loans because it had been swamped with

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[1](19), p. 103.

requests since producing its own computer-based serials listing, and could not begin to service them in a reasonable time (21). Thus many sought their information from much further away, simply because the service was speedier. Interestingly enough, the service from the New York Public Library was considered by one librarian to be quicker than any other source she had found close by, and she now places all her requests there.

Staff training and functioning received considerable attention in a study of public library systems (33). The investigators found that too often staff did not fully understand or accept the systems concept, attempted to fill requests without proper background or training, and especially did not know when to stop and refer something to a higher level in the hierarchy. This was particularly true in smaller systems with untrained branch personnel. Conversely, the study found that many patrons have access to materials outside their own (sometimes very small or inadequate) library for the first time through belonging to a system and were taking advantage of it.

Restrictions on loans are mentioned by Pings as a very real drawback in a study on midwest biomedical libraries (38). He found that slightly less than half the libraries which responded restricted their lending, either on a geographic basis, to certain types of

libraries, or by reciprocal agreement only. Only 16 out of 75 loaned current journals, and many did not use the standard interlibrary loan form. Billing procedures varied widely. He recommends 24 hours turn-around service, photocopying for journal articles, dropping of fees except for very long articles and the distribution of serials and other holdings lists to discourage unsuccessful borrowing.

Some of these improvements have been made by the Medical Library Center of New York (10). Originally conceived as a central storage facility for little-used materials in medical libraries, it developed as time went on that services rendered by this Center became much more important than the storage capability. Daily delivery of needed items, simplified billing for photocopy by the medical library center rather than from and to individual libraries, and installation of TWX in all participating libraries resulted in faster service for everyone, in spite of vastly increased use of loans.

Some general conclusions may be drawn from the above; they will be further detailed later. Turn-around time is probably the largest single factor contributing to the failure or success of any interlibrary loan network or system. It is determined by availability of bibliographic tools, trained staff, photocopy facilities, and more importantly than all these, by the establishment

or clear procedures and policy statements by all participants.

We will now examine two existing systems in some depth to see the effect of formalized agreements and streamlined procedures on ongoing operations.

The NYSILL System: (31)

The New York State Interlibrary Loan Network (NYSILL) came into being as a "logical extension of developments in library services in the nation and in New York State."[1] In this state, greatly aided by a liberalized library law in 1958, and state aid somewhat later, its public libraries banded together in twenty-two systems, serving 99% of the population. The next step was the 3R's system, providing for nine regional resource and referral libraries to backstop the twenty-two systems. At the same time several other cooperative ventures developed, notably the SUNY Biomedical Communications Network, connecting a number of large medical libraries via terminal and often a computerized data base (40), and the federation of five associated university libraries (FAUL) (41). In New York, METRO (6) had come into being, as well as the New York Medical Library Center (26). New York had also pioneered by the installation of a statewide facsimile transmission system (FACTS) (32), which was later abandoned because of high cost, equipment failure and insufficient use. Thus the stage was set to formalize

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[1](31), p. xiv.

interlibrary loans within the state and make them more efficient. NYSILL begun in 1967, assigns to the state library the responsibility for switching and screening messages, thus it is, by our definition, an interlibrary loan network. Public library systems and other consortia as well as academic libraries are expected to fill as many requests within their own jurisdiction as possible, and no one under eighteen is served by NYSILL. The state provides participation grants to referral libraries, as well as reimbursement of costs for each transaction to subject resource libraries. A tree pattern was conceived as the service moved through its various steps:

1. Readers request materials at their own public, special or academic library (school libraries are not included because of the age limit).

2. Requests not filled at the local library are searched at systems headquarters; college and special library requests are screened by one of the 3R's participants where feasible.

3. Requests still unfilled are sent to the State Library; it serves as a switching center and clearinghouse as well as a back-stop library.

4. If the request is not filled at the State Library, it is referred to one of three major public libraries for backstopping service.

5. If that library could not fill the request, it is referred back to the State Library and from there to one of the eight subject referral libraries, from there to another, if the first one cannot fill.

6. If the request is still unfilled, it is returned to the originating library to be searched through other sources.

Each referral library had a TWX installed to speed communications.

Several revisions in this procedure were made after a six-month trial period. Large academic institutions were allowed to borrow from one another without going through NYSILL, thus speeding up service. Copies of the requests had to be sent to the State Library, however, to insure reimbursement.

Although it was found that the service was heavily used, mostly by academic library patrons whose requests came through public library systems, it was found to be slow and cumbersome. Overall time elapsed from initiation of request to receipt of material averaged 22 days. 46,000 requests were received in Phase I, an eight month period, of which 55% were filled. Of these, the State Library was able to fill 44% and referrals were made for 11%. More than half of all requests were considered ineligible for referral beyond the State Library. Cost was an average of $15.80 per request filled; this figure includes both the participation grant and the reimbursement per transaction to referral libraries. Academic participation was hesitant; several libraries indicated that they avoided using NYSILL.

Revisions based on these findings included a recommendation for tighter procedures all along the way, particularly regarding improved bibliographic citation, better definition of patron status, standardized TWX format, and more streamlined transmittal procedures,

eliminating the requirement of referral back to the State Library.

A second evaluation took place during Phase II of NYSILL. Questions were asked about improved speed and the effects the new procedures had had on NYSILL. Volume increase was considered, as was success rate of filled requests. Cost comparisons were made, and an attempt was made to categorize requests by patron status, type of material and originating agency. A delivery system was considered because of slow mail delivery. Two newly established regional networks in New York State were evaluated as to their role in NYSILL.

Findings were that use of NYSILL was heaviest by public library systems and by academic libraries in upstate New York. The New York metropolitan area relied less heavily on the network but often went directly to another library inside or outside the state known to have the wanted item. In some cases it was found that NYSILL could have filled these requests. Medical and special libraries relied less heavily on the service than other types of libraries, the former having their own regional and national networks and the latter because of a requirement for speed. While at first libraries were expected to go to their area referral library and then to one of the subject resource libraries, it was found to be more expeditious, (and therefore became general

practice), to approach the subject library direct if that was indeed the best way to obtain material. Most requests were only referred once and were then filled.

Costs were found to have dropped, average cost per referred, filled request was now $10.82 (as compared to $15.80 during Phase I). $6.65 of this amount was for unit fees (reimbursement per transaction) and $4.17 was part of a participation grant. Costs per library were often quite high for subject referral libraries, if their participation grant was high and their volume of requests handled low.

Time factors had improved somewhat; the average time it took to complete a NYSILL request was now 19 days, as compared to 22 before, the range was from ten days to 28 days. This was attributed partly to the fact that referrals were now direct; the State Library received the request only once and it was then referred directly from one library to another until filled. Another factor was the institution of a five-day limit on holding and processing a request.

The filling rate improved also; from 44% at the State Library during the first phase to 47% in the second. The highest rate achieved by referral libraries was 70% (for New York PL, New York Academy of Medicine and Cornell) and the overall rate of requests filled was 64%.

Volume in NYSILL increased by an overall 29% during

Phase II to 87,000 with the academic library requests showing the greatest increase (over 90%).

Thus the four factors by which system performance may be measured had all improved: volume, filling rates, elapsed time and decrease in costs.

The study recommends a continuation of the service on an operational basis and makes recommendations for improvement. Verification of requests remains a problem and many librarians indicated that they did not really understand the verification procedures. It was recommended that the source of the citation always be included to facilitate searching for requests which could not be verified locally. Status reports are to be made more promptly so that the patron may know the status of his request as soon as possible. Personnel requested that administrative procedures and the Operations Manual be made more explicit, and that assistance with setting up procedures be available from the State Library. In-service trinaing was recommended to alleviate some of the concerns in this area, as well as a revision of the Manual.

Delivery time (that is, mail delivery) is still one of the largest chunks of elapsed time between receiving and delivering (one full week). Estimates were made to ascertain if a delivery service operated by the State Library would provide a partial solution. It was found that it would not be economically feasible, even at

expected increased levels of volume, because of the large geographic area covered, and the problem of sorting and routing thousands of single items for individual libraries. Too, its cost is no less than first class mail delivery and would probably be no faster on a statewide basis. Local delivery systems (such as United Parcel Service) were explored and were found to be a possible partial solution to point-to-point delivery of quantities of material (e.g. Albany to New York City). First class mail for photocopy only was recommended as feasible, while first class mailing of books was not recommended because of considerably increased costs over the Library Book Rate.

TWX has worked well, not only because of its speed of transmission and the availability of records at both ends, but also because the mail room is bypassed completely. Some problems remain with accuracy, largely alleviated by the installation of paper tape on all machines which allows a typist to proceed slowly and carefully and then transmit the request at 100 words per minute automatically. Too, the paper tape can be kept and retransmitted when a referral becomes necessary. The latter procedure requires additional filing and storage, however.

The report strongly recommends following a uniform format in TWX requests; some libraries did not do this in the past, and varying formats slow down handling. Too, if everyone adhered to a standard format, conversion

to computer procedures, for which TWX terminals could serve as direct input devices, would be facilitated.

The referral procedure is reviewed and the report recommends that referral libraries' subject strength be more clearly identified. Too many requests were referred to the wrong place, only to be slowed down by a second referral. An exhaustive listing of subject strengths should be prepared; this would substantially enhance the eventual operation of an automated referral service at the State Library.

The report deals with automation next; the anticipated growth of NYSILL volume during the next few years will make automation of the switching function at the State Library mandatory. The State Library must maintain several paper records on each transaction at the present time; an automated system would eliminate all but a single input: the original request, transmitted via TWX. It would require extremely detailed holding information for each referral library so that requests could be referred automatically. In part, a history file for all inter-library loans would constitute such a listing; based on past response records, a new request entering the system could be referred to the library which has, in the past, filled requests in the subject area of the request. The Dewey class number could serve to identify each request and the computer could monitor success and failure rates.

One of the more startling conclusions reached by the report is that TWX will gradually be phased out. This assumption is based on technological considerations; if an on-line system becomes operational in the State Library it is likely that the teletypewriter would provide too slow a means of access, and would need to be replaced with terminals capable of high speed transmission.

There is considerable attention to the existence of various networks (some general and some special-purpose) in New York State and it is recommended that these should be interconnected whenever practical and mutually desirable. Inter-system linkage would avoid some duplication and would afford better over-all coverage of the state. A warning is issued, however, that an overly complicated network of networks might slow things down rather than improve access to library materials, and that all planning must keep the goal of speedy, successful service in mind.

An extremely interesting section of the report discusses implications for the future of libraries in general in terms of user needs, technology and the like. The need for subject information, updating of current knowledge, SDI systems and the like may change the nature of interlibrary loans considerably. Dealing with a single document as they do, interlibrary loans cannot provide for subject information, and all the rest enumerated.

above. Provision of information, rather than documents may become the pattern, aided by many presently existing and yet-to-be-developed data bases, informal communications among members of the "invisible college", which might be stored and dispensed via computer and similar as yet inaccessible kinds of information.

Finally, some attention is given to political considerations. When NYSILL was established, (as well as some of the other cooperative ventures), many librarians feared that local development of resources would be handicapped, that centralization would prove to be cumbersome, and that regionalization was to be preferred. NYSILL has been responsive to these fears; the system is, in effect, a decentralized system now, with two regional networks operating harmoniously alongside and within it, and with more direct access provided between origin and destination points. Local resources have not suffered, in part because of the emphasis on service to youth at the local level, and also because of the refusal to fill requests for which material should be available locally.

In general, NYSILL is considered to be a success, and is, in this writer's opinion, a milestone in library network development.

The Regional Medical Library System:

The development of a regional medical library system in the United States is the culmination of many years of planning on the part of medical librarians at the local,

regional and national level. It was preceded by several cooperative ventures of groups, some of which are briefly described above (16, 24, 25, 29, 40, 46). More are reviewed in a previous paper by the author (19). Better document delivery has long been an important concern of medical librarians, and they have developed some of the most sophisticated techniques to measure performance in existence today (35). Outstanding among the pioneers in the development of regional services are Pizer and Pings whose operating networks (Pizer's SUNY Biomedical Communications Network and Pings' Detroit Metropolitan Library Network) remain models upon which much of the regional medical library was based (7,24, 39, 40).

Regional medical libraries came into being as a result of passage of the Medical Library Assistance Act, which permitted funding for a variety of programs for the benefit of the medical library users' community, only one of which was the concept of a biomedical communications network with regional medical libraries as components. Several studies had been commissioned by the National Library of Medicine or were made previously and virtually all came up with a similar three- or four-level pattern of service, beginning with a local library and culminating with services to be provided by the National Library of Medicine (5, 12, 19, 36).

Eleven regions have been formed of which ten are

presently operational.[1] Each region encompasses several states; consideration was given, in the forming of each region, to existing patterns of interstate relationships. Organizational patterns, services, operating procedures and regulations vary widely among regions, as local conditions may dictate.

For example, while the first of these regions to become operational, New England, has a centralized service operating out of the Francis A. Countway Library of Medicine at Harvard, the Southeast Regional Medical Library is strongly decentralized. While its headquarters is located at Emory in Atlanta, it has designated certain libraries in the region, equally strong, to serve as "designated" or primary libraries for their immediate area of service (most of the time this area is synonymous with a state) (13). Free photocopies are provided to all qualified users who are members of the medical profession, biomedical scientists and paramedical personnel. Each library is reimbursed on the basis of requests filled, at $2.50 per request. First class mail is used for delivery exclusively, and quick service is the rule. All regional libraries and designated libraries have now or will soon have TWX equipment.

The Pacific Northwest Regional Medical Library is an example of yet another kind of organizational pattern

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[1] Most of this information was obtained by personal communication (8, 9a, 13, 15a, 27, 39).

(27). It serves five states: Alaska, Idaho, Montana, Oregon and Washington. As yet, there is no TWX connection with Alaska, but airmail is used to communicate with the Alaska Health Sciences Library which is a designated library and serves the state. In Idaho, where there is no medical school, the Pacific Northwest Regional Medical Library works with the State Library. The latter has TWX and an internal teletype network among the public libraries in the state, through which requests from physicians are transmitted. Montana has as yet no designated agency; attempts are being made to establish a formal relationship with a VA hospital or a larger hospital library to serve the state and transmit requests. Direct requests are taken from all unserved areas, as well as from those with designated libraries. However, after filling the request, the patron is informed of his designated library and it is suggested to him that he channel requests there first. In Washington, requests are taken direct, through the State Library and also through the medical school library of which the regional library is a part. Referrals are also made from the Pacific Northwest Bibliographic Center. Searching for material is campuswide in this library, a practice not usual in some regional libraries which require that requests must be in the biomedical area only and available in either their own or another medical collection.

The New England Medical Library has liberalized usual interlibrary loan procedures considerably (14, 30). For example, verification of requests is not required, only a citation of the source of the request. This permits small libraries with no access to bibliographic tools to use the regional library freely. Users include "any health science practitioner, investigator, student or educator". A WATS line allows libraries to call in requests regularly; for weekend and holiday use a Code-A-Phone was installed to permit recording of requests for later servicing. Direct requests are accepted from all qualified users, but as in Washington, they are informed of their local library's participation in the program and asked to channel requests through it whenever possible.

One of the feared side-effects of the establishment of regional medical libraries is that it might decrease the building of strong local collections (9). The New England library counters this possibility by actively encouraging the building of these collections, and aiding with book selection tools, consultation, and similar services, as well as in-service training of local librarians.

Turn-around time and rate of filled requests for regional medical libraries are truly dramatic. Statistics are available for July - September 1969:

Fig. I

REGIONAL MEDICAL LIBRARY QUARTERLY STATISTICAL REPORT
INTERLIBRARY LOANS, JULY - SEPTEMBER 1969[1]

REGION	WORKLOAD		AVAILABILITY RATE	THRUPUT TIME	
	Requests Recorded	Requests Accepted	Percent Filled	% filed in 3 days	% filled in 4-5 days
1[2]	10,142	9,718	85	83	93
3	15,445	15,175	90	99	100
4	10,252	9,854	82	78.2	90
5	12,744	12,481	75	90.1	92.6
7	4,512	4,458	69	91	97.2
10	4,541	4,465	92	84.2	89.1
NLM	25,753	22,373	91	59	83.5

Several interesting observations can be made from the above figure. The National Library of Medicine, although greatly relieved of some of its interlibrary loan burden, still shows the poorest record in turn-around time. Regional libraries do not allow direct borrowing

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[1] Source: (42), p. 4.

[2] Regions are: 1 - New England; 2 - New York (no statistics); 3 - Mid-Eastern, Philadelphia; 4 - Mid-Atlantic Region, National Library of Medicine; 5 - East Central Region, Detroit; 6 - Southeastern Region, Atlanta (no statistics); 7 - Midwest Region, John Crerar, Chicago; 8 - Mid-Continental Region, Omaha (no statistics); 9 - Southwestern Region, Dallas (no statistics); 10 - Pacific Northwest Region, Seattle; 11 - UCLA Biomedical Library, Los Angeles (no statistics).

from NLM in their regions, and only send requests there when all resources have been exhausted, including other regional libraries. Although this rule is presently "on the books", it cannot be expected to become truly effective until all regional libraries are fully established.

These libraries have been established for varying lengths of time, some of it only very short, thus no firm conclusion can be drawn as yet. Some changes in policy have already taken place as libraries have gained experience. One of the rules in the beginning specified that no library could request any material directly from outside its own region and that all requests had to be channeled through the regional library. This is now changing; if libraries are reasonably sure that the material does not exist in their region, they may go directly to a source known to them (13). A list of designated libraries has been prepared for use by regional and other libraries. New York region is in the process of decentralization; Countway at Harvard is using some large libraries in the region as informal (non-designated, non-funded) screening agencies. As indicated above, that library requires no verification, but does expect it from "libraries of substance". Most of the other regional libraries require it and also that requests be submitted on standard forms whenever possible. The John Crerar

Library uses forms which are sent along with rejected requests, stating reasons for rejection (8). Lack of standard form, lack of verification, non-typed requests, request not signed by responsible librarian, multiple requests on one form, only one copy of request submitted, and type of material requested are some of the reasons for rejection. It seems surprising that some regional libraries have very few requirements, while others seem overly rigid. Apparently each has a great deal of autonomy in developing its policies and procedures.

As time goes on it will be interesting to see if this embryo national network will coalesce or if each regional library and its region will go its own way. The concept of a biomedical communications network espoused by the National Library of Medicine would suggest that these libraries would form a cohesive network; as yet this has not happened (23). There seems to be little direction from NLM, and even less contact or work with the Lister Hill Center for Biomedical Communications which, one would think, would become the capstone of any such network. It remains to be seen whether or not these relationships will emerge as all regional libraries become more firmly established.

Discussion:

What can we learn from the information presented here? We have looked briefly at trends in interlibrary

loan objectives and procedures, local applications and some problems. We have discussed at some length two systems which are operational, one a true network, the other as yet in the beginning stages of network development. Certain conclusions may be drawn:

1. Turn-around time (that is, the time it takes from the placing of a request to receipt of material) is crucial to the success of any interlibrary loan network. The NYSILL network, because of its complexity and slow mail delivery, has not yet been successful in reducing the time factor to satisfactory proportions. The regional medical libraries have been very successful; less volume, strict enforcement of prompt handling agreements and exclusive use of first-class mail have aided in this. However, it should be remembered that most of the medical requests are for journal articles which can be photocopied, while NYSILL handles many book requests. Too, its organization is more complex than the RML's.
2. TWX has speeded request transmittal greatly. It is universally used for this purpose, and wherever a standard format and paper tape transmission are used, it presented very few problems. The cost is modest, and well worth the increase in speed.
3. Staff training in the concept of networking has not yet been entirely successful. Entrenched attitudes have given way slowly, and uniformity of procedures are not always observed, resulting in an inevitable

slow-down. The tradition of maintaining strong autonomy on the local level, of partaking of network services at one's pleasure, (in New York), have worked against acceptance of some of the "rules from the outside" which a system must necessarily enforce.

4. We know very little as yet about the value of time vs. cost. Is it worthwhile to send all books first class to insure speedy delivery? How great is the need for speed? For whom? Under what conditions?
5. The unfilled requests which appear in all the statistics we have seen make us wonder if this material could not have been obtained somewhere. How far must a library or a system go before it gives up? How much staff time can be devoted to any one request?
6. A liberalized interlibrary loan policy and procedure is a must for any successful library operation. Wherever rules were simplified, as they were at the New England RML and during an experiment connecting two campuses of the California university system via LDX (44), an immediate speed-up occurred.

Conclusions and Implications for the Future:

What can we look forward to in network developments for interlibrary loan? Before stating our own thoughts, we wish to call attention to an excellent article by Bregzis, who points out some developments as well as defines areas in which work needs to be done (4).

He expresses his conviction that new patterns of research and information use will emerge as a result of machine-based bibliographic and related services. He sees the distinction between different kinds of libraries blur, as users look to the nearest library for all their information needs.

Communications technology looms large in the future; the possibilities of didgital-video consoles, and micro-teletransmissions screens open up ways hitherto unavailable by which documents may be transmitted. He sees the library as providing information services to the user at work or home, rather than requiring him to come to the library. The necessary bibliographic tools to access libraries and other data bases will become more numerous and will be available at different levels in central locations, while services will become more decentralized. Access to documents will have to be managed in a different way so that they may always be available when needed.

The necessary work to accomplish some or all of the above includes a different way of organizing library materials to insure access through the chain of libraries forming a network, as well as providing more and different access points to any given document. Technology must be made to be more responsive to library needs in the areas

of large storage capacity as well as man-machine interfaces and data communications links.

To this impressive list, we wish to add some further observations. Any given interlibrary loan system or network is measured by four factors: volume, filling rate, elapsed time and cost. We have fairly satisfactory ways of measuring these; however, there are some areas in which we have not attempted measurement, and which seem to me to be basic for network planning:

1. Users: Librarians have always made certain assumptions about users. Despite studies which have pointed out several disturbing factors, librarians continue to make these same assumptions. Some of these are: A patron will come to the library when he needs something. He will be willing to wait for it for varying amounts of time. He knows what he wants. He is able to describe it adequately. We are able to fulfill most if not all of his needs through traditional interlibrary and other loan procedures. The patron expects this service to be free.

Each one of these assumptions has either been shown to be wrong or is a highly dubious one, which has not been proven one way or another.

A patron does not always think of the library as the logical source for his information needs. He often does not know that interlibrary loan is available to

him (and it sometimes is not).

He is usually but not always unwilling to wait for material, and therefore does not even bother to come to the library but calls someone and gets what he needs quickly.

He knows approximately what he wants, but does not always realize what is available to him in addition to the source or sources known to him. Thus he can miss a wealth of pertinent information through ignorance.

He is not always able to adequately describe his needs, and a skillful interview can reveal that what he really wants is not what he says he wants.

We are certainly not able to fulfill most of his needs; there are whole areas of even the more traditional kinds of library materials which are not easily available to the patron. What small public library knows how and when to obtain government documents free? How many know where the depositories for various technical reports are and how their services may be obtained? How many junior college librarians know how to obtain films? This is not to mention access to videotapes, computer-based data bases and the like. We simply do not perform as switching agents for information materials.

The patron pays for many services willingly. If he wants a copy made, he pays a dime in a commercial establishment. If this service is provided in the

library, librarians often think it is sinful to charge, because taxpayers support the library. We feel that if a service can be made truly important to the user, he will be willing to pay part or all of its cost. This would be the cost incurred beyond the minimum service available to all patrons regardless of age. We have examples of long standing for this. The John Crerar Library, although a free public reference library, has charged for years to members those costs which go beyond normal use of the library. Industrial information services established in conjunction with libraries almost always charge; if their services are good enough, the customer pays, willingly.

In all these areas we need to institute or refine measurements. Some of these exist; others need to be developed. As yet unsuccessful have been studies of the cost-benefit ratio for libraries; however, efforts are underway in this area (43). User habits in information gathering have been measured successfully, and it is disappointing that so few libraries have as yet applied the instrument developed for this activity (17,35). Studies have shown that certain classes of information users obtain data and text in various ways, and that the library ranks relatively low in the hierarchy (1, 5, 11, 19). Instruction in the use of the library, that is,

in our context here, letting the user know what is available to him in addition to what he knows about, is usually poor and needs to be stepped up considerably in all kinds of libraries. Current awareness services are operated in some libraries; much more needs to be done in this area. Only when the user knows what is available will he be able to utilize the literature. And no one knows what the effect on interlibrary loans will be; we think that we have only seen the top of the iceberg in this area.

2. Document Delivery: We begin with the user once again. We have made the assumption all along that he is either unwilling or unable to supply full bibliographic information for a needed document. This is certainly true in the area of subject requests and also for users not as yet well trained in bibliographic procedure. Thus we have assumed that librarians must perform all the necessary steps of verification, transmission of requests and the like to insure successful completion.

It seems that in some cases, where verification, for example, was eliminated, the success rate was quite high, making the above assumption a doubtful one. We feel that the user should be given much more responsibility for the eventual success of his search; only in exceptional cases should the librarian aid him. He should be able to fill out the top part of a revised ALA form, while the lower part would be reserved for internal records among

the libraries involved. Typing would no longer be required as long as the request is legible. Telephone requests should be as acceptable as any other kind, thus making the entire interlibrary loan service much more accessible to remote users.

A factor frequently mentioned in the literature on our subject notes unsuccessful first attempts at locating a given document, followed by subsequent referrals. Here again, something may be learned from special libraries. Specializing in a given field as they do, they must not only know their own collections intimately but also bibliographic resources elsewhere to obtain needed documents. Why then could not a number of subject specialists be employed by the switching center in a given network (such as the State Library in New York)? It would be their responsibility to be familiar with the subject strengths of libraries in their field of expertise, and we believe that referral could be handled more successfully in this manner. Not every library can have subject specialists in sufficient numbers; thus another responsibility of these people at the network level would be to hold in-service training workshops in the literature of their field, vastly enhancing the bibliographic competence of library staffs.

Implementing this recommendation would help solve another problem which concerned us as we reviewed the

literature. What happens to the unfilled requests which appear in every set of statistics we viewed? Again, we call on our experience as a special librarian; when we say to the user "if we don't have it we'll get it for you", we usually mean it. And we leave no stone unturned until the information is located. We know of very few "unfilled requests" in those special libraries where we have worked. Perhaps the employment of subject specialists would bring us closer to filling most requests than we are now; they should know where material can be obtained, both through formal and informal channels.

Finally we wish to devote some attention to technology. Document delivery has been speeded up by first class mail service or airmail, bus delivery, transmittal of requests via TWX and in some few cases, telefacsimile. There remains the need for a cheap device which would transmit document facsimiles at reasonable speeds and in legible form. Communications links are available, but this author wishes to reiterate her previous recommendation that preferential rates, similar to the Library Book Rate, be sought (20). Night use of ETV channels should be explored as a fast means of transmission (22). Computer-to-Microfilm devices are a relatively recent development; it may be envisioned that large networks could have storage COM libraries, which would transmit,

in digital form, full text to the site where it is needed. User-oriented devices are available now for viewing and hard copy printout of text and will increasingly become part of the decentralized service described above.

3. Administrative considerations: We need to comment on network management a bit. It appears that the network concept is by no means universally understood or accepted. A conference such as this one is a beginning; it should be followed up by regional workshops, similar to the MARC Institutes, to disseminate findings and recommendations. Librarians must learn to think "network", just as they now think "bookmobile", or "reference service".

Management of networks is an art as yet little understood and for which not many people are trained. The experiences in actual network operation in New York State and elsewhere should offer some valuable suggestions to others as yet untrained. Careful systems design, much advanced planning and a total immersion program for all participants to fully understand and accept the concept are necessities.

State and federal legislation must be flexible enough to allow network formation in geographic regions, regardless of state lines. This is as yet not true for all the states; much effort should be spent in effecting the necessary changes.

Cost considerations are, of course, important. However, they should be weighed carefully against the actual and potential benefits accruing to the user; how much is his time worth as compared to that spent by the network in speeding his request on the way? If his needs are considered important, and if a satisfactory time frame can be achieved, considerable expenditures of money may be justified, part of which should be borne by the user.

Finally, the concept of economy of scale should be applied. Is there a minimum, a maximum, an optimum size for a network? What kinds of networks can operate on a smaller scale than others?

Performance standards should be developed for network operations, and devices to measure network performance. As noted above, some instruments exist already, others need to be developed. <u>All should have user feedback built in</u>. Without user reaction, librarians are prone to base decisions on all the old assumptions mentioned above.

Finally, we wish to talk about people in general: librarians and users alike. People are what makes any cooperative enterprise work; they put up resistance; when they understand, they accept, sometimes unwillingly and sometimes enthusiastically. People on all levels of any cooperative venture must be included in planning,

from the user to the top administrator. Thus far we see no evidence that this has been done; we feel that this is perhaps the most important of all our recommendations.

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